Amendments to the Specification

Please amend the specification as follows.

Please amend the paragraph beginning at page 15, line 9, as follows:

According to the present invention, as described ~~below,~~ above, a transparency of the fluid in a measuring path can be increased. Specifically, as the rotatable table is rotated, the rotatable table and the polishing abrasive are moved relatively to each other. As seen from the rotatable table, the polishing abrasive is moved backward in the rotating direction of the rotatable table. According to the present invention, since the auxiliary supply passage is disposed at the forward of the supply passage in the rotating direction of the rotatable table, the polishing abrasive is diluted in a location forward of the measuring area. Specifically, the polishing abrasive is primarily diluted in the auxiliary supply passage, and then secondarily diluted in the rear measuring area. Thus, the transparency of the measuring area is increased, and hence the measurement accuracy can be increased.

Please amend the paragraph beginning at pages 23-24, line 23, as follows:

According to the present invention, there is also an advantage in that when the expendable component is consumed or breaks down, it is not necessary to shut off the substrate polishing apparatus immediately to perform a replacing operation. The expendable component may be replaced during ~~other~~ another maintenance operation such as replacing the polishing pad. Therefore, an operating rate of the substrate polishing apparatus can be increased.

Please amend the paragraph beginning at page 25, line 14, as follows:

In a preferred aspect of the present invention, the substrate polishing apparatus has the following structure for transmitting light between the polishing table which is being rotated and the outside of the polishing ~~table:~~ table. The substrate polishing apparatus has a fixed-side light guide disposed outside of the polishing table for transmitting the measurement light emitted by the light source component to the polishing table; and a rotary-side light guide disposed in the polishing table for receiving the measurement light from the fixed-side light guide. With this structure, the film on the substrate on the rotatable table can be measured using the measurement

light that is emitted by the light source component which is disposed outside of the polishing table.

Please amend the paragraph beginning at pages 26-27, line 24, as follows:

In a preferred aspect of the present invention, the substrate polishing apparatus has the following structure for delivering a fluid between the polishing table which is being rotated and the fixed~~-side:~~ side. The substrate polishing apparatus has a fixed-side passage disposed outside of the polishing table, the control valve being disposed in the fixed-side passage; and a rotary-side passage disposed in the polishing table; wherein the fixed-side passage and the rotary-side passage have a fixed-side passage end portion and a rotary-side passage end portion, respectively, which face each other when the polishing table is in a predetermined conduction region extending in a rotating direction of the polishing table. The fixed-side passage and the rotary-side passage may be a supply passage or a discharge passage.

Please amend the paragraph beginning at pages 54-55, line 9, as follows:

Although the cylindrical pipe piece 86 constitutes the outlet portion of the supply passage 44 in the above embodiment, a pipe piece of different type may be employed alternatively. FIGS. 6A through 6H are views showing various types of pipe pieces that can be employed in the present invention. FIG. 6A shows the cylindrical pipe piece 86 employed in the present embodiment. FIG. 6B shows a pipe piece 96 whose outer surface and hole have a hexagonal cross section. In contrast thereto, a pipe piece 98 shown in FIG. 6C has an outer surface having a hexagonal cross section, and a pipe piece 100 shown in FIG. 6D has a hole having a hexagonal cross section. A pipe piece 102 shown in FIG. 6E has an outer surface having a star-shaped cross section and a hole having a circular cross section. A pipe piece 104 shown in FIG. 6F has an outer surface having a circular cross section and has a hole having a star-shaped cross section. Both pipe pieces 106, 108 respectively shown in FIGS. 6G and 6H comprise a cylindrical pipe piece. The pipe piece 106 has two notches 110 provided near the outlet 88, and the pipe 108 has four notches 110 provided near the outlet 88. These notches 110 are engaged with a tool when the pipe pieces 106, 108 are installed and removed. When the pipe pieces 106, 108 are disposed very closely to the substrate 18, pure water in the supply passage 44 can be released through the

notches 110. FIGS. 6A through 6H only show ~~an example~~ examples of the pipe piece, and it is possible to select a pipe piece having ~~other~~ another type of structure.

Please amend the paragraph beginning at pages 59-60, line 5, as follows:

An operation of mounting the pipe unit 116 will be described below. First, the unit base 142 shown in FIG. 8B is placed on the pipe unit mount surface 114 of the rotatable table 12, and is then fixed to the pipe unit mount surface 114 by screws which are inserted into the screw holes 150 of the unit base 142. The unit base 142 is placed on the pipe unit mount surface 114 such that the projecting portion 148 of the unit base 142 is inserted in the hole formed in the pipe unit mount surface 114. At this time, the light-emitting base optical fiber 118 that is exposed at the pipe unit mount surface 114 and the light-emitting junction optical fiber 125, the light-receiving base optical fiber 120 and the light-receiving junction optical fiber 127, and the supply passage 44 and the communication passage 133 are aligned with each other, respectively. Then, the pipe piece 122 is fitted into the cylindrical portion 146 of the unit base 142 in such an orientation that the key 138 of the fiber support 130 is inserted in the key slot 152 of the cylindrical portion 146 of the unit base 142, and hence the pipe piece 122 is mounted on the unit base 142. In this state, the light-emitting junction optical fiber 125, the light-receiving junction optical fiber 127, and the communication passage 133 of the unit base 142 are aligned with the light-emitting optical fiber 124, the light-receiving optical fiber 126, and the communication passage 132 of the pipe piece 122, respectively. With the pipe piece 122 being mounted on the unit base 142, the fastening member 140 is turned to press the flange of the pipe piece 122, so that the pipe piece 122 is fastened to the unit base 142. The light-emitting junction optical fiber 125 and the light-emitting optical fiber 124 are joined to each other, and the light-receiving junction optical fiber 127 and the light-receiving optical fiber 126 are also joined to ~~each,~~ each other, thus allowing those optical fibers to guide light.

Please amend the paragraph beginning at pages 63-64, line 5, as follows:

In the above embodiment, the pipe piece 122 has the light-emitting optical fiber 124 and the light-receiving optical fiber 126, and the unit base 142 has the light-emitting junction optical fiber 125 and the light-receiving junction optical fiber 127. Alternatively, a light-emitting optical fiber 124 and a light-receiving optical fiber 126 which extend continuously from the pipe

piece 122 to the unit base 142 may be employed. This structure can be achieved by the following ~~structure:~~ structure. The pipe piece 122 has a cylindrical optical fiber fixing member made of a resilient material. An optical fiber is inserted through the optical fiber fixing member and is then fastened by the optical fiber fixing member. The unit base 142 has a light-emitting optical fiber 124 and a light-receiving optical fiber 126 whose tip end portions project upwardly. The light-emitting optical fiber 124 and the light-receiving optical fiber 126 projecting upwardly of the unit base 142 are inserted into the optical fiber fixing member, so that the tip end portions of the light-emitting optical fiber 124 and the light-receiving optical fiber 126 are positioned in the pipe piece 122. Then, the optical fiber fixing member is tightened to fix the light-emitting optical fiber 124 and the light-receiving optical fiber 126 in place. The light-emitting optical fiber 124 and the light-receiving optical fiber 126 may be fixed together by the optical fiber fixing member, or may be fixed separately by respective optical fiber fixing members which are provided for the light-emitting optical fiber 124 and the light-receiving optical fiber 126, respectively.

Please amend the paragraph beginning at page 73, line 10, as follows:

In the substrate polishing apparatus 10, the piezoelectric element 174 is attached to the light-emitting optical fiber 80 and the light-receiving optical fiber 82. When voltage is applied to the piezoelectric element 174, the light-emitting optical fiber 80 and the light-receiving optical fiber 82 ~~is~~ are moved along the supply passage 44, and hence the positions thereof can be changed. The controller unit 30 for controlling the voltage generator 176 which applies voltage to the piezoelectric element 174 is connected to the calculating unit 180 which calculates the amount of light received by the light-receiving optical fiber 82. The control unit 30 controls the piezoelectric element 174 based on the amount of the received light calculated by the calculating unit 180, so that the light-emitting optical fiber 80 and the light-receiving optical fiber 82 can be moved so as to increase the amount of the reflected light to be received.

Please amend the paragraph beginning at pages 75-76, line 20, as follows:

According to this modification, as with the above embodiment, the control unit 30 controls the ball screw 186 based on the amount of the received light calculated by the calculating unit 180, so that the light-emitting optical fiber 80 and the light-receiving optical

fiber 82 can be moved so as to increase the amount of the reflected light to be received. The above modification is also applicable to the fourth embodiment. In this case, the outlet portion moving means is constituted by ~~of~~ the ball screw and the ball screw actuating circuit.

Please amend the paragraph beginning at page 76, line 10, as follows:

FIG. 14 is a view showing a substrate polishing apparatus 10 according to a sixth embodiment of the present invention, and showing a measuring area of the rotatable table 12 at an enlarged scale. The substrate polishing apparatus 10 according to the sixth embodiment has the same basic structure as the substrate polishing apparatus 10 according to the fourth embodiment (FIG. 11). However, while the pipe piece 170 is movable in the fourth embodiment, the light-emitting optical fiber 80 and the light-receiving optical fiber 82 together with the pipe piece 170 are movable in the ~~fifth~~ sixth embodiment.

Please amend the paragraph beginning at page 84, line 16, as follows:

With this structure, the polishing pad 16 is attached to the rotatable table 12 in the following ~~manner:~~ manner. First, the tube portion 194 is fitted into the recess of the protection cover 190, so that the protection cover 190 is mounted on the rotatable table 12. The position of the protection cover 190 on the rotatable table 12 is thus determined. Then, the polishing pad 16 is attached such that the protection cover 190 is fitted into the through hole 84. In this manner, the polishing pad 16 is positioned and attached to the rotatable table 12.

Please amend the paragraph beginning at page 85, line 19, as follows:

When the substrate 18 is polished in the above embodiment, the patch piece 194 may not necessarily be mounted on a portion from which the protection cover 190 has been removed. For example, the cylindrical pipe piece 86 in the first embodiment described above may be employed. The protection cover 190 according to the present embodiment may be used when the polishing pad 16 is replaced in any of the substrate polishing ~~apparatus~~ apparatuses 10 according to the other embodiments.

Please amend the paragraph beginning at page 93, line 21, as follows:

In the above embodiment, the polishing pad piece 212 is made of the same material as the polishing pad 16. Alternatively, the polishing pad piece 212 may be made of ~~other~~ another material which is worn more easily than the polishing pad 16. The polishing pad piece 212 may not have a polishing function.

Please amend the paragraph beginning at pages 109-110, line 23, as follows:

Within the scope of the present invention, the expendable components are not limited to the lamp and the electromagnetic valve. As described above, the expendable component may be a light source component other than the lamp, e.g., an LED or a laser light source. Within the scope of the present invention, the expendable component may be replaced together with ~~other~~ another component disposed near the expendable component. For example, an entire unit including the expendable component may be replaced. Such an operation is also included in the expendable component replacing operation. Within the scope of the present invention, further, a process of determining whether a film is present or not may be included in the process of measuring a film thickness. Furthermore, a process of measuring a film is not limited to the process of measuring a film thickness.

Please amend the paragraph beginning at page 115, line 22, as follows:

As described above, in the present embodiment, the plurality of expendable components having the same function are provided. The expendable component, of those expendable components, which functions for measuring a film is switched to ~~other~~ another component. Therefore, it is possible to reduce the number of times the expendable component is replaced, thus reducing the burden on the operator.

Please amend the paragraph beginning at page 127, line 13, as follows:

According to the present embodiment, as described above, a switching control of the flow rate of the measurement fluid can be realized by a simple structure of a fluid delivering mechanism. Thus, it is possible to dispense with the electromagnetic valve for controlling the flow rate of the measurement fluid. Even if the electromagnetic valve remains installed, the service life of the electromagnetic valve is greatly increased because the electromagnetic valve

~~do~~ does not have to be operated frequently during the measurement. It is thus possible to eliminate the operation of replacing the electromagnetic valve.

Please amend the paragraph beginning at page 130, line 13, as follows:

Structural ~~feature~~ features of the present embodiment will be described below. In the embodiment, a fluid container 2100 (FIG. 1) stores a solvent of the slurry as the measurement fluid. The solvent of the slurry is preferably a main component solvent which is of the same type and has the same concentration as the slurry. The solvent is delivered by a supply pump 2102 and supplied to the sensor 26 through the supply passage 44.

Please amend the paragraph beginning at page 134, line 5, as follows:

In the present embodiment, it is preferable to apply the following ~~structure:~~ structure. A member constituting the supply passage 2042 is made of a highly chemical-resistant material. A member constituting the discharge passage 2044 is also made of the same material. For example, these members are made of a resin or a ceramic. The supply passage may be coated with a highly chemical-resistant material, and this structure is included in the above structure. With this structure, the supply passage member is prevented from being damaged by the solvent which is used as the measurement fluid. Further, the substrate is prevented from being contaminated by impurity which has been eluted from the supply passage member due to the effect of the solvent. It is preferable that the optical fiber for guiding measurement light and reflected light has the same structure.

Please amend the paragraph beginning at pages 137-138, line 26, as follows:

As already described, in the proposed conventional stream-type measuring device, a liquid is forcibly supplied as a measurement fluid, and usually comprises pure water (DIW). The liquid removes the slurry to reduce the influence that the slurry has on measurement. However, since the slurry and the liquid are mixed with each other to a certain extent, the influence that the slurry has on measurement still exists, thus causing the measurement accuracy to be lowered.